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ABSTRACT

This paper explains the apparent inconsistencies in media research findings by identifying apparent research weaknesses which complicate data interpretation and frustrate attempts to derive broad generalizations useful to practitioners in their classroom use of visual media. Emphasis is on the interrelationships which exist among the different types of visual materials, different types of educational objectives, methods of presentation, and cueing techniques. Studies describing the results obtained from evaluations involving television, slide/audiotape, programmed instruction, and textbook formats are also reviewed. A list of references is provided. (Author/RAO)

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RESEARCH INTERPRETATION: A JUSTIFICATION FOR MEDIA

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Research into Practice

(Presentation Abstract)

RESEARCH INTERPRETATION: A JUSTIFICATION FOR MEDIA

This paper will attempt to explain the apparent inconsistencies in media research findings by identifying apparent research weaknesses which complicate data interpretation and frustrate attempts to derive broad generalizations useful to practitioners in their classroom use of visual media. The presentation will emphasize the interrelationships which exists among the different types of visual materials, different types of educational objectives, different methods of presentation, different cueing techniques, etc. Studies describing the results obtained from evaluations involving television, slide/audiotape, programmed instruction, and textbook formats will be reviewed.

RESEARCH INTERPRETATION: A JUSTIFICATION FOR MEDIA

Education is currently experiencing financial crises which are necessitating that virtually everyone justify the financial outlay made for his position, equipment, and materials. At all levels instructional media specialists and users of educational technology are being challenged to defend their usefulness in the teaching-learning process. This is not always easy to do because of the contradictory nature of empirical findings which have resulted from media related research studies. For example, if one were to survey the available experimental media research, a number of studies would be found in which instruction utilizing media was significantly more effective than conventional instruction. Some studies would also be found in which the mediated instruction was found to be significantly less effective than conventional instruction, and others would be found in which no differences were found to exist between the mediated and conventional instruction. To further complicate media justification, when significant differences are obtained in empirical studies, the results are seldom in agreement with other research findings investigating similar problems (Davis, 1962; Wendt & Butts, 1962; Stickell, 1963; Reid & MacLennan, 1967; Chu & Schramm, 1967; Edling, 1968). Opponents of media and technology are quick to cite these contradictory findings as an indication of ineffectiveness.

Since it has been documented that properly designed visual materials can significantly improve student achievement (VanderMeer, 1950b; Kopstein & Roshal, 1954; Treichler, 1957; Gropper, 1962; Dwyer, 1972, 1978), it is imperative that individuals charged with the responsibility of justifying media utilization be able to detect those deficiencies in media research which contribute to its failure to generate consistent findings of superiority. After deficiencies are identified, contradictory findings can be explained and the use of media justified.

Following is a list of some of the most common criticisms associated with media research which tend to complicate data interpretation and frustrate any attempts to derive broad generalizations useful to practitioners in the classroom (Dwyer, 1978 pp. 39-41):

1. Many studies have obvious weaknesses in experimental design, i.e., lack of randomization of students, vagaries in sampling, inadequate numbers of students in treatment groups, lack of tests of significance and probability statements, absence of any control factors.
2. A considerable number of media related studies which have been reported are without any hypotheses or predictions based on theory.
3. The content material being presented experimentally in media related studies has been restricted in that it is far removed from that which is currently being taught in schools (nonsense syllables, digits, letters, etc.); consequently, the results have had little practical significance to educators involved in applications in the classroom.
4. The difficulty and meaningfulness of the content material (in terms of the kinds of educational tasks to be achieved by the students) used in the experimental treatments has not been specified precisely.
5. In many media related studies content to be taught has not been pretested to determine where visualization of the the content is appropriate; in other words, a considerable amount of visualization used in media related experiments has not been specifically designed to complement the content material to be presented.

6. In media related research the relationship that exists between the content information in each channel (visual, oral, print) to the information in the other channel(s) needs to be specified precisely.
7. The method of presenting the visualization has not been described precisely.
8. The precise purposes of visualization in many mediated studies has not been stated.
9. The amount of realistic detail (line drawings, detailed, line drawings, photographs) contained in visualization designed to complement oral/print instruction in media research has not been described precisely so that data from different studies can be compared.
10. Mediated instruction normally is evaluated via printed criterion items. To properly assess the instructional contribution of visualization, a significant proportion of the evaluation battery should reflect all the channels (visual, print, oral, etc.) used by the learner to acquire the information.
11. Many of the criterion tests currently being used to measure achievement are global in nature attempting to measure the students' total learning, rather than being designed to measure media's contribution to students' achievement of specific kinds of educational objectives. In using the global criterion test to measure student achievement of different types of objectives, the variances are pooled (for the different objectives), thereby concealing any effects that media may have in faciliating student achievement of specific educational objectives.

12. Many of the criterion measures used to assess student information acquisition may be invalid or unreliable--reliability and validity coefficients are very infrequently reported in media related research.

13. The type of test items used to measure student information acquisition has not been adequately specified. This is important because item format can influence the student's level of achievement; i.e., a fill-in type test in which the student is required to provide the correct word is more difficult than a recognition type multiple-choice type test in which the student is required to select the correct response from an array of possible alternatives.

14. Researchers have failed to specify the time-span (seconds, minutes, hours, etc.) between the presentation of the information to the students and the testing.

15. The amount of time students have been permitted to view and interact with the instructional presentations has not been adequately controlled and/or reported.

16. Media researchers in preparing their research for publication have omitted essential characteristics of their studies which prevents exact replication, i.e., total time of treatment, age or grade level of students, mean intelligence of students, prior knowledge in the content area, etc.

17. Very few of the media related studies have been replicated to establish confidence in the results.

18. The diversity of interests and a lack of common usable terminology used by media researchers has compounded the misinterpretation of many media related studies and restricted their generalizability.

19. To a certain extent the results of experiments have been determined by the statistical techniques used--a liberal test providing one interpretation of the results, a conservative statistic another.

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